Animation

Structure :

- The power of Motion
- Principles of Animation
- Animation by computer
  - Animation Techniques
  - Animation File Formats

The Power of Animation

It makes static presentations come live.

Animation grabs attention.

Transitions are simple forms of animation :

→wipes ,
→fades ,
→zooms ,
→dissolves .

These can be used for primitive animation.

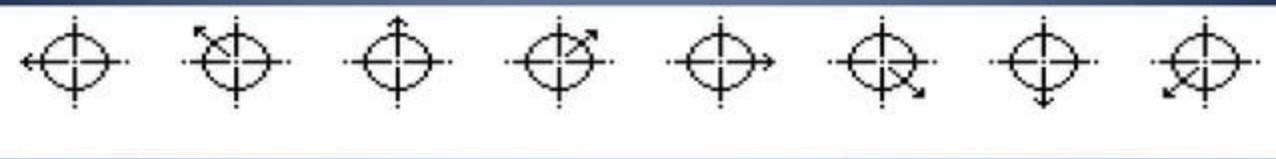
The Power of Animation

But animation is much more.

Animation is an object actually moving across or into out of the screen, spinning globe and so on.

How Animation Works?

- ✓Persistence of vision.
- ✓Still images are flashed in sequence.
- ✓Frame rate measures the speed of change.



Principles of Animation

Animation is possible because of a biological phenomenon known as Persistence of Vision & psychological phenomenon called Phi.

Persistence of Vision → an object seen by the human eye remains mapped on the retina for a brief time after viewing.

Combined with the human minds need to conceptually complete a perceived action that makes it possible for a series of images that are changed very slightly & rapidly.

Principles of Animation

Television video creates 30 frames per second.

Movies are shot at a rate of 24 frames per second and replayed at 48 frames per second .

Both are used to create motion and animation.

Animation by Computer

Using appropriate software & techniques , one can animate visual images in many ways.

The simplest animation is on a 2D space & more complex animation can take place on 2 and ½ D space & most realistic animation on 3D space.

In 2D space , the visual change s bring an image alive occur on the flat co ordinate axes x and y.

Examples : blinking word, color cycling logo , cel animation.

Software : Flash or Power Point

Animation by Computer

In 2 and ½ Dimension , an illusion of depth is added to an image through shadowing & highlighting but the image rests on a 2d plane.

Example : Embossing , shadowing , beveling.

Software : Adobe Illustrator , Photoshop.

In 3 Dimension , software creates a virtual realm in 3 dimensions & changes are calculated along all three axes.

Examples : Moving objects closer or farer from the viewer etc.

Software : AutoDesk's Maya , NewTek's Lightwave

Animation Techiques

When you create animation, organize its execution into a series of steps :

1. Gather up in mind all the activities you wish to provide in animation.

2. If its complicated , create a written script with the list of activities & required objects & then create storyboard to visualize animation.

3. Choose the animation tool best suited for the job.

4. Finally, Post process your animation, doing any special rendering & adding sound effects.

Cel Animation

The term Cel derives from the clear celluloid sheets that were used for drawing frames , which have been replaced today by layers of digital imagery.

Cel animation artwork begins with Keyframes.

The series of frames in between the keyframes are drawn in a process called Tweening.

Tweening is an action that is requires calculating the number of frames between key frames & the path that the action takes & then actually sketching with pencilthe series of progressively different outlines.

Cel Animation

As tweening progresses the action sequence is checked by flipping through the frames. The penciled frames are assembled & then actually filmed as a pencil test to check smoothness , continuity and Timing.

When pencil frames are satisfactory , they are permanently inked, photocopied onto cels , and given to artists to paint the details for each cel.

Normally women are preferred for this as it needs patience & great eyes for details.

Computer Animation

Computer animation programs typically employ the same logic & procedural concepts as cel animation & use the vocabulary of classic cel animation – layers, keyframe , tweening & so on.

The primary difference among animation software programs is in how much should be drawn by the animator and how much is automatically generated by the software.

Kinematics

Study of movement and motion of structures that have joints, (such as a person or a walking dog).

Complex- need to calculate position, velocity, rotation and acceleration of all joint and body parts involved.

Inverse kinematics – process of linking objects together and define their relationships and lifts and then drag the parts and let the computer calculate the result (for example, connect hands and arms and bent the elbow in various directions)

Fractal Design's Poser – a 3-D modeling program

Morphing

- *Morphing* is the process of transforming one image to another.

Animation File Format

- Windows Media – .AVI, .ASF, or .WMV
- Apple QuickTime – .QT or .MOV
- Motion Video – .MPG or .MPEG
- Flash – .SWF
- Shockwave – .DCR
- Animated GIF – .GIF

Animation File Format

Director (dir) compressed into a Shockwave animation file (dcr) for the web.

Windows Audio Video Interleaved Format (avi)

Macintosh (quicktime, mov)

Motion Video (mpeg, mpg)

GIF89a (.gif)

Shockwave (.swf)

Animation File Format

Use animations carefully so your screens don't become too "busy".

Animation tools

- Director
- Adobe GOLive
- GIF animators